Research Community Panel

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Workshop on the Health Impact Assessment of New Energy Sources: Shale
April 30-May 1, 2012
Evidence linking natural gas development, community impacts, health effects

• Very little direct evidence linking community impacts of natural gas development to health effects
• Draw on literature looking at environment, stress and health to create a framework for future research
Evidence / Uncertainty for NGD Impact on Community and Health

NG development → Population Influx → Social Disorganization ↓ Social Cohesion ↓ Social Capital

Traffic, Noise, Economic conditions, Quality of life changes

Allostatic changes, Immune System, HPA Axis

Psychosocial Stress → Individual Health → Community Health

Chemical Exposures

Colorado School of PUBLIC HEALTH
Community Impacts Research

1) Community Impacts- longitudinal: pre/post
   – STI, crime, social services, economic status, etc. (organized → disorganized)
   – Survey community experience (level of social cohesion, social capital)
   • *Document impacts at community level to direct community interventions*
Community Impacts Research

2) Intermediary endpoints associated with NG exposures

- Stress
  - Biomarkers - HRV, cortisol, c-reactive protein, TNF-α, NFKappaB signaling, heart rate variability
  - Surveys - perceived stress, negative affect

- Change in individual behavior
  - Decreased exercise, increased substance abuse (tobacco, ETOH)
  - Survey
  - Understand the exposures that cause stress, monitor interventions
Community Impacts Research

3) Health endpoints

- Multilevel analysis to include environmental and individual risk factors
  - Cardiovascular
  - Pulmonary
  - Endocrine
  - Immunologic
  - Cancer
  - Mental health

- Understand the link between environment, stress and health

Stress metrics

Disrupted community